

PETROLEUM, ITS USE AS A FUEL

THE use of petroleum for fuel for ocean steamers is but a new departure in the industrial world, and yet it has already grown to such proportions that ships are built to carry oil across the sea, and here in Honolulu there is tankage for the storage of millions of gallons of oil.

Petroleum, before the exploitation of the California fields, was of too high value for lighting purposes to be thought of as fuel. The Eastern oils, even to this day, are not used largely for purposes other than lighting, although the production has increased every year since the first well was drilled on Oil Creek in the days immediately preceding the Civil War. It was the oil boom in Pennsylvania, leading to the accumulation of vast fortunes in very short periods, that first drew attention to the California oil fields. The story of their development reads like a romance—a romance with decidedly commercial flavor, and an intensely commercial climax.

The earliest settlers in Southern California had noted the presence of large springs of "ground oil" in the hills about the Mission of San Buenaventura and in the Punete Range on the seaward side of Los Angeles. They could not well help noting it, as the oil oozed from the soil in many gulches, forming pools of sticky asphalt in which it was no uncommon thing for horses and cattle and sheep to mire.

Even at an earlier period navigators in the small craft that plied the waters of the Santa Barbara channel had ob-

the oil could be used for lighting purposes. Nobody, in those days, could conceive of any other use for petroleum and so the California oil fields were allowed to languish.

It was known, of course, that there was plenty of oil in the hills of Ventura and Los Angeles counties. Speculative scientists still wrote, occasionally, about the oil on the waters of the Santa Barbara channel. The government took advantage of this to find a stretch of still water upon which to test the speed of new war ships when Secretary Whitney began building up the navy. But nobody thought of turning to account this vast store of wealth running to waste under the hills into the sea. The Pennsylvania measures still produced oil, and new fields were found and exploited in western New York,

was to make a kind of thick, yellow oil as different from the white product of the eastern works as lard oil is from benzine. It was demonstrated that the California oil made a first-class lubricant, but that was all—and there was not enough machinery in all California to take the lubricator that one good well would yield.

THE FUEL PROBLEM.

And then came a new man into the field, a somewhat visionary man, with the idea that the fuel problem of California—a very vital problem indeed in a land where wood is scarce and where there is no coal—might find its solution in the use of oil. E. A. Edwards did not make a fortune, as he deserved to do, by the first application of the ap-

the mountains to the coast at the town of San Buenaventura.

The oil steamers that ply from the Hawaiian Islands to the coast are loaded at the wharf at Ventura or at Oleum in San Francisco Bay, with oil that is run directly from the wells in the mountains into the tanks on board the vessels.

Oil operators have even put down wells beneath the sea, and at Summerland, in Santa Barbara County, may be seen long wharves reaching out into deep water, and on the extreme ends of these wharves the tall derricks that mark where the pipe goes down to tap the wealth that has been for ages oozing out of the rocks at the bottom of the ocean.

The oil business of California, in fact, has grown to such proportions that the Standard has become alarmed at its development and for the past few years has been making the most strenuous efforts to secure control of that field, as it already controls the business in the East.

The California railroads long ago began to use oil as fuel for their locomotives. Not an engine on the Southern Pacific system in that State, aside from the switch engines in use about the yards, now uses coal—and the use of oil is almost as extensive on the Santa Fe. The latter railway even sprinkles petroleum along the line of its road across the desert to keep down the dust—and, indeed, the oil has come into use largely everywhere in Southern California for this same purpose. An oil road, sprinkled about once a month for a year or two, becomes almost as good as an asphaltum paved highway.

The production of oil is increasing in California, and its use mainly for fuel

is at Honolulu that the ships going from the mainland in any direction toward the westward must stop for their first supply of fuel.

School Statistics Of The Territory

The school laws of the Territory demand that all children between the ages of 6 and 15 must attend some school. Between these ages at the present time there are 16,897 children in school, as against 16,218 in 1903 and 15,525 in 1902. There are also 1,182 children under 6 years of age who are attending, for the most part, kindergartens supported by voluntary contributions. Of these a considerable number are Asiatics. Of course, the attendance of these 1,182 children is entirely voluntary, whereas the attendance of the 16,897 children between the ages of 6 and 15 is obligatory, and nonattendance can be punished by legal methods. Of those above 15 years of age there are 1,220 in school, as against 1,116 reported last year. Of these, 648 are in private schools and 572 are in public schools. The Honolulu High School, the Normal School, and the Lahaina agricultural school chiefly provide for those who are accounted for in the public-schools record. The elder pupils of the private schools will be found at Oahu College, St. Louis College, Kamehameha schools, and other establishments of the same class.

THE practical control of the oil business of California is now in the hands of two great companies, viz, the omnipresent Standard Oil Company and the Union Oil Company of California, although there are a few smaller companies free from their control, one being largely represented in Hawaii through the Pacific Oil Transportation Company.

The Standard made an attempt to get in to the Hawaiian market, but was unwilling to meet the prices quoted by the other two companies, which, at present, have a monopoly of the Hawaiian fuel oil business.

The fuel oil trade between California and Hawaii has already assumed vast proportions, although crude oil was first used for fuel in Hawaii in January, 1903.

In 1902 there was only one oil tank vessel on the Pacific Coast, the Santa Paula, a schooner barge of 8500 barrels capacity.

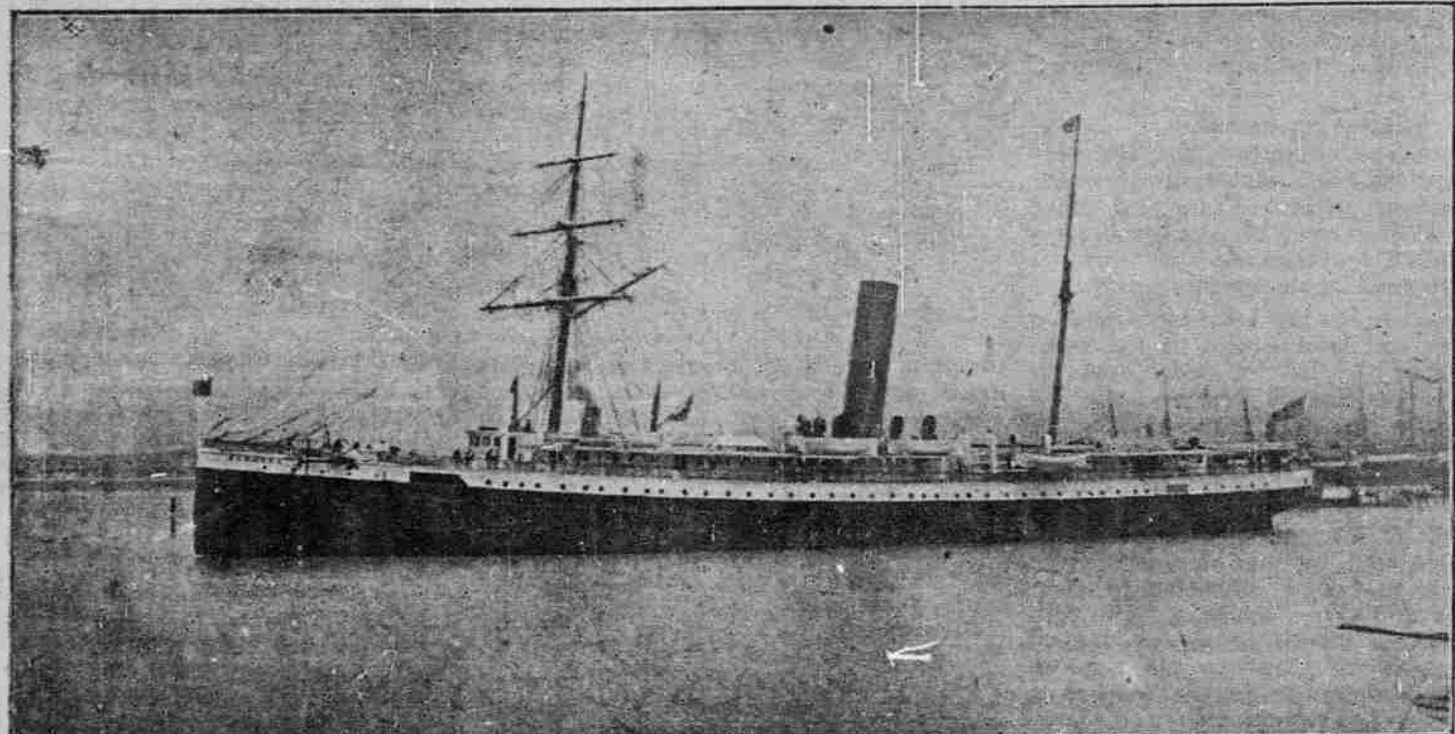
There are now seven in use by the Union and Pacific companies alone, mostly in the island trade, viz:

NAME—	Capacity Barrels.
Schooner Santa Paula	8,200
Steamer Whittier	11,000
Four-masted schooner Fullerton	16,000
Steamer Argyle	30,000
Ship Marion Chilcott	15,000
Steamer Rosecrans	20,000
Ship Monterey	24,000

A total capacity of.....124,200

Both of these companies have orders out for additional ships, which will be in commission during the coming year. The amount of money invested by the Union and Pacific companies in connection with the island trade alone, for pipe lines, storage tanks, ships and landing apparatus, is approximately \$2,000,000, and the investment is constantly increasing. The oil is stored in immense steel tanks holding up to 50,000 gallons each.

USE AS FUEL. So far oil fuel is being used in Hawaii only on the Islands of Oahu and Maui. The storage tank capacity on Maui is 135,582, at Kihai and Kahului, and up-



AN OIL BURNING PASSENGER BOAT—THE OLD-FAVORITE ALAMEDA OF THE OCEANIC LINE.

served the oil covering the ocean for miles in the sea south of Point Conception, lying upon the water in such quantities as to have an appreciable effect in moderating the force of the waves there during the winter season.

The development of the Pennsylvania fields led to the initial attempt to turn the California mineral oils to profit, and it was a Pennsylvania man who first tried to exploit what has with in the past ten years become one of the greatest of the many sources of the wealth of the Golden Coast. It will be remembered that immediately following the war Colonel Tom Scott began to devote to the Pennsylvania railway that marvelous administrative ability which resulted in laying the foundations of what has since become one of the greatest of American roads. That was when the oil business was in its first glory, and the Pennsylvania road owed not a little of earlier prestige to its success in handling the oil carrying trade and the good fortune of its management in dealing in oil lands.

Colonel Scott, in fact, was one of the first Americans to foresee the great future of the American oil industry, and one of the first, also, perhaps, to see that the Pennsylvania oil fields would one day become exhausted. At all events, he was among the earliest of those who began reaching out for new fields, and the very first to attempt the exploitation of the California territory. Colonel Scott, like most men of great administrative genius, was a good judge of men. He selected as the man to represent him in the new oil region a man who had served in his office as president of the Pennsylvania railway, a young surveyor of Chambersburg of the name of Thomas R. Bard.

That man is now United States Senator from California, and the possessor of a fortune estimated to be well up in the millions, which fortune has been accumulated largely as the result of operations in the oil fields of California. Hon. Thomas R. Bard was at one time the president, and is still a large stockholder in the Union Oil Company of California. But that is to anticipate the tale.

SCOTT'S FIRST VENTURE.

Colonel Scott had purchased several large Spanish land grants in California, believed to consist of oil bearing lands, and the young surveyor, Bard, was sent to Southern California as his agent, with instructions to test the ground thoroughly and report as to its value as an oil territory to come in and supply the place of the Pennsylvania fields when those should be exhausted. This was immediately at the close of the Civil War in 1866.

Bard was not himself a practical well driller, but he was a practical man, with a large fund of hard common sense, and he had seen much of the oil business. Going at once to Southern California, as he had been instructed, he took up his residence at the town of San Buenaventura and proceeded to test the oil fields. He put down six wells, after the most approved Pennsylvania manner, the first of these at a distance of about eight miles from San Buenaventura in a region where great quantities of oil are produced to this day. In fact, all the Bard wells are in land that is productive now. The Bard wells all produced oil but it was a heavy, black stuff, with a base of asphaltum, entirely different from the light green oil that gushed from the sand of the Pennsylvania hills.

And then came the problem of handling of oil after it had been produced. Bard had demonstrated that there was oil in Southern California. He was not a chemist, and he could not show that

and Ohio and West Virginia.

And then, in the late seventies, came the second depression in Pennsylvania, following upon the earlier efforts of the Standard crowd to get control of the production and transportation of oil. Many Pennsylvania operators, men who knew nothing else but oil, were frozen out of the business in those days—and were too old to seek another kind of labor, although they were willing to seek their kind in a new field. Among these, no doubt, were some men in whose memories the operations of Tom Scott in California nearly twenty years earlier lingered as a kind of tradition.

Naturally, looking for a field for operations, the minds of these men turned to the old stories of Scott's ventures. And it was these men, coming into Southern California at that time by the hundred, who gave the oil business on the Pacific Coast the impetus that has led to the present splendid development. But they, themselves, met only failure.

The Scott interest, of course, had lapsed at the time of this revival, Scott himself was dead, his lands had been sold for the most part, and although Thos. R. Bard remained in Ventura county, it was as a large land owner on his account and not as the agent for Scott that he kept his residence there. Also, he had grown wealthy, but it was as a stock grower and farmer on a prize entirely apart from the oil business, entirely apart from the oil business. In fact, he seemed to have forgotten all about his oil-well boring experience, although he had not forgotten it, as the event proved.

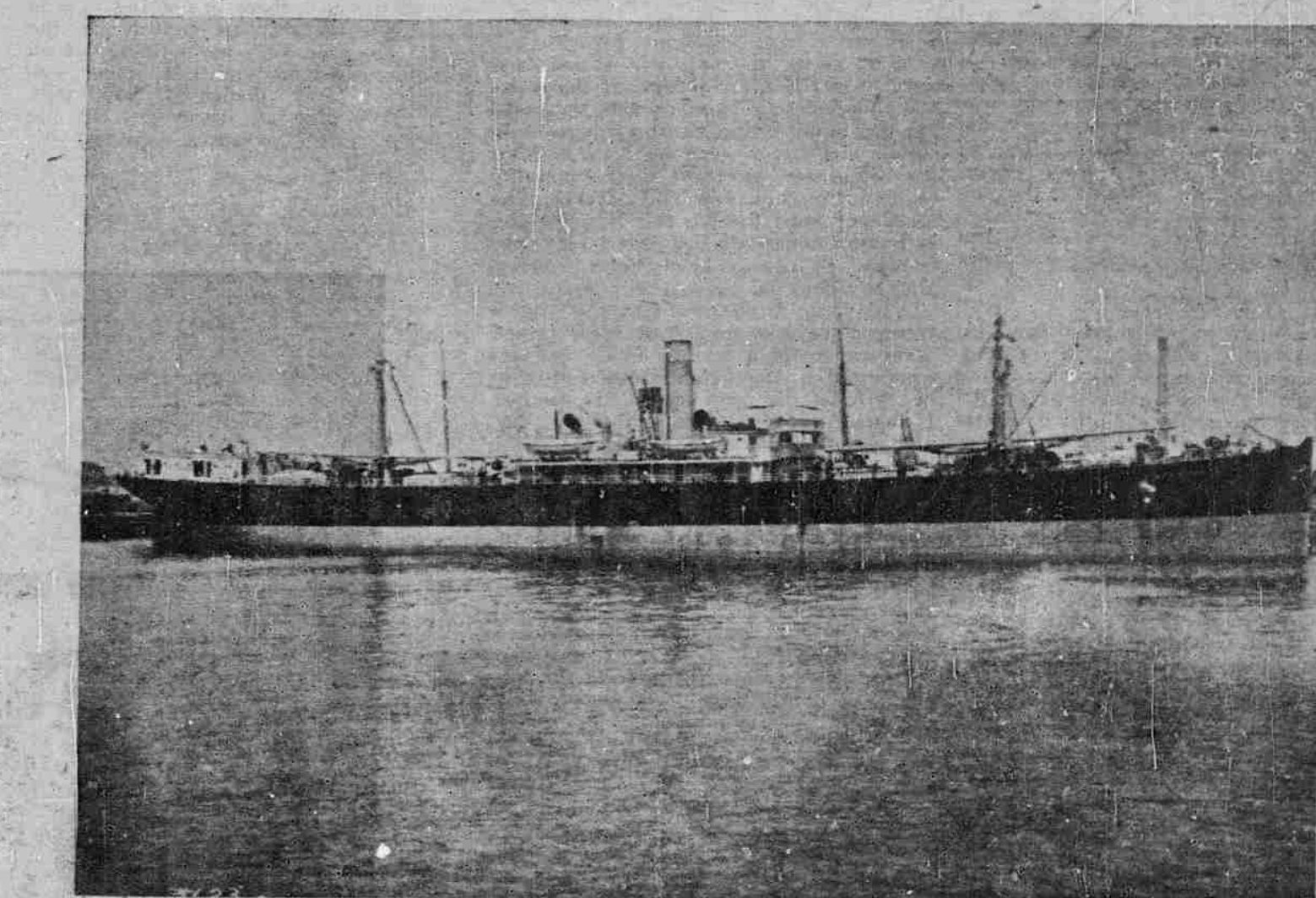
The newcomers into the California oil field found oil, as Bard had found it, but they found also the same difficulty that he had found in the handling of the product. Try as they might, they could make nothing that would burn in a lamp of the black, refractory stuff that oozed rather than gushed out of the ground, as the lighter paraffine oil gushed from the spouters in Pennsylvania. D. C. Scott, one of the earliest and not the least successful of these earlier operators, spent a fortune of his own, and several fortunes for other people, trying to refine California oil at Ventura, building some half a dozen refineries. And the best he could do

paratus to mix oil and steam for fuel purposes in substantially the same way as they are mixed now wherever fuel oil is used, but he gave the oil business of California that start toward success that was needed. From the crude machinery devised by Edwards in his little tinshop in the town of San Buenaventura is a long step to the splendid furnaces that furnish the heat for the grown-up child of his own brain. And yet it is that and nothing else.

With the successful use of oil as a fuel for all purposes proved to a demonstration, the long neglected oil fields of Southern California became at once of great immediate and potential value. Many of the Pennsylvanians who had come into the country made fortunes in oil, for its use as fuel grew and spread, and Thos. R. Bard turned his attention once more to the development of that source of wealth that had been the first cause of his settlement in California. The lands that he had acquired in the course of his business enterprises proved to be rich in oil, and presently he was ranked as a millionaire in a new generation of millionaires.

The Ventura and Los Angeles county oil fields were exploited. It was found that a stratum of oil-bearing sand lay under the hills of the city of Los Angeles itself, and the very fairest portion of the town was given over to a forest of greasy derricks, producing thousands of barrels of petroleum daily. Great oil measures were opened in the mountains of Kern county, and the Southern Pacific railway even built a branch road forty miles in length to accommodate the trade of the wells, carrying out oil in tank cars, and carrying in supplies to the drillers and squatters.

Vast fortunes were made, and are still being made in California oil. Pipe lines have been built from Kern county to the shore of San Francisco bay to carry the oil to tide water, to overcome the cost of shipment by rail, and from



AN OIL BURNING FREIGHTER—THE AMERICAN-HAWAIIAN LINER NEVADA.

purposes keeps pace with the production. In fact, its use increases rather faster than the production. Land that is recognized as possible oil territory, therefore, acquires added value from this prospective source of wealth to its fortunate owner. And this would be true, in the minds of thoughtful men, even though the use of oil as fuel were not increasing by the natural increase of manufacturing industries on the Pacific Coast of the mainland.

Fuel oil has just begun the commercial conquest of the Pacific—the ocean of the future. Only when it is in universal use on sea going steamers will the industry attain the true measure of its commercial greatness. In this greatness the port of Honolulu is destined to bear a very considerable share.

These figures show that almost the whole of the school population, according to the laws of the Territory, is being instructed.

AN ACCIDENT.

A spinster once who was antique
Daubed lots of rouge upon her chique,
But by mistake
She made a brake
And got a little on her bique.

The people saw the crimson stripe
And laughed until they all grew wique.
The spinster saw
What made them "Haw!"
And vanished with a fearful shriek.
—Chicago Chronicle.

wards of 1000,000 barrels of oil are kept on storage there.

The storage capacity at Honolulu on Oahu, in use and in course of construction, is 250,000 barrels, and upwards of 150,000 barrels of oil is kept stored in them.

The consumption of oil on Maui during 1903 was but small. It has more than doubled during 1904. The total Maui consumption during 1903 and 1904 was approximately 160,000 barrels.

The consumption on Oahu was 241,000 barrels during 1903 and 405,000 barrels during 1904.

This does not include oil supplied to trans-Pacific steamers, of which there are a constantly increasing number using oil fuel.

CONCERNS USING OIL.

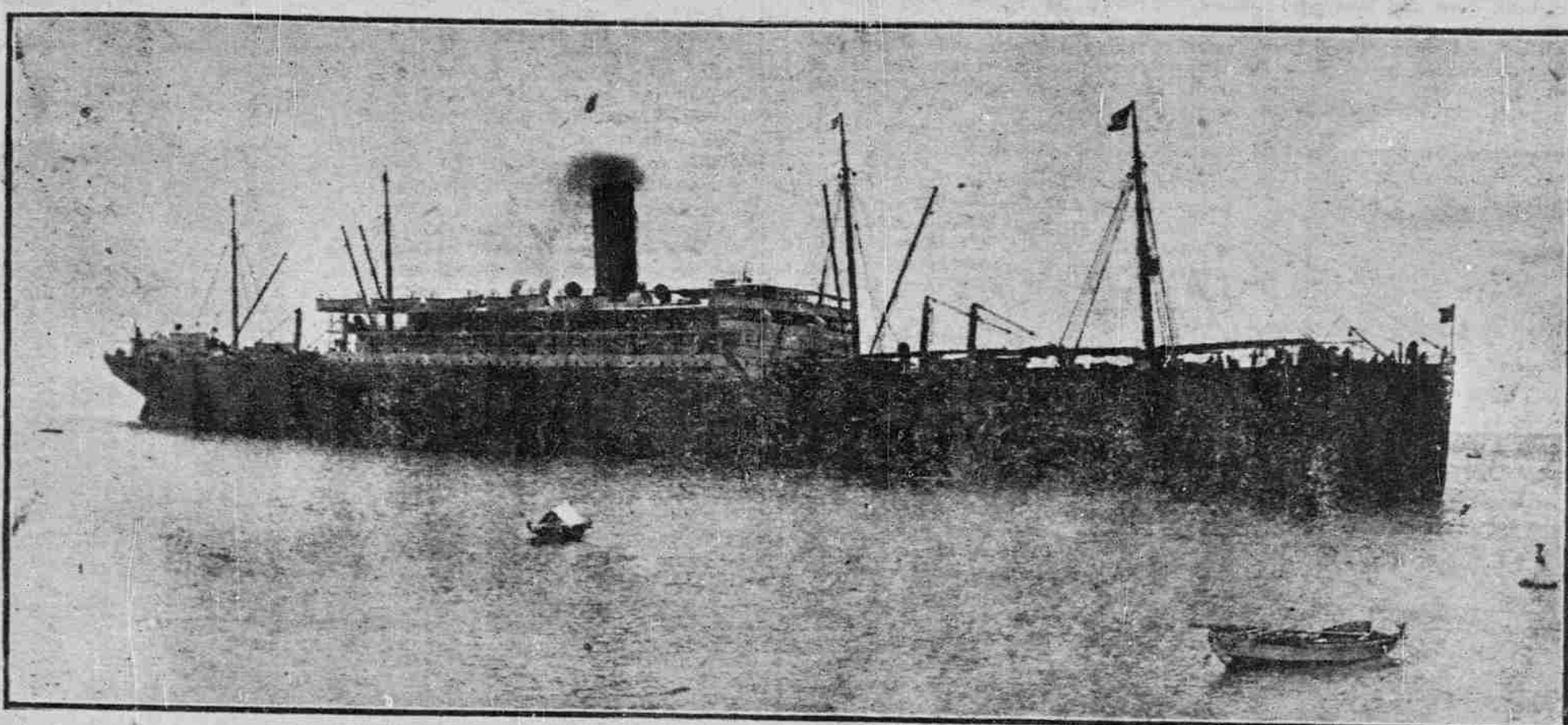
The business concerns using oil fuel in Hawaii are: On the Island of Maui—Haku Sugar Company, Pala Sugar Company, Hawaiian Commercial and Sugar Company, and Kihai Plantation Company.

On Oahu—Kahuku Plantation Company, Waihua Plantation Company, Ewa Plantation Company, Oahu Sugar Company, Honolulu Sugar Company, Oahu Railway and Land Company, Honolulu Rapid Transit and Land Company, Honolulu Brewing and Milling Company, Hawaiian Electric Company, Alexander Young Hotel, Cation, Neil & Co., Honolulu Iron Works, Hawaiian Pineapple Company, Pearl City Fruit Company, Hawaiian Dredging Company, Pacific Guano and Fertilizer Company.

The cost of the oil delivered to the consumers at point of consumption varies from \$1.40 to \$1.60 per barrel, according to quality of oil and location of point of consumption.

The efficiency of the oil as compared with coal varies from 3.57 to 4.25 barrels of oil as the equivalent of one long ton of Australian coal, showing a saving of from 25 per cent to 45 per cent in dollars, besides the additional cleanliness, facility in handling and elimination of hand labor.

The economy and incident advantages are so great that eventually all fuel users on any scale must use oil.



THE MONGOLIA, ONE OF THE BIG PACIFIC MAIL LINERS CALLING AT HONOLULU.